

Work Environment and Employee Productivity: The Role of Job Satisfaction

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Abstract

This paper examines the effect of work environment on employee productivity. The mediation role of job satisfaction in the nexus amidst work environment and employee productivity is also assessed. The cross sectional design and survey approach was deployed. Structured questionnaire was used to collect data. Public Second Cycle teachers in the Ashanti Region of Ghana formed the population of the study. The study adopted Ordinary Least Square in SPSS as the data analysis technique. The study found significant positive effect of work environment on employee productivity. Lastly, the nexus amidst work environment and employee productivity was found to be partially mediated by job satisfaction. It is recommended that management should pay much attention to workplace conditions so that employees feel comfortable. Management should ensure serene environment in the workplace to improve employee productivity. Management should implement acceptable job conditions to motivate employees to achieve their targets. This will ensure that employees submit high quality work. It will also encourage employees to demonstrate positive attitude towards work. By so doing, employees will deliver work on time and meet deadlines. Notwithstanding, employees will seek opportunities for growth in order to increase their productivity.

Keywords: Work Environment, Job Satisfaction, Employee Productivity, Ghana Education Service

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1. Introduction

As the popular adage goes “education is the key to success”, countries all over the world are putting in much effort to enrich their educational system especially after the COVID 19 pandemic which had significant adverse effect on education (Connelly *et al.*, 2021). Even before the pandemic, the interests of countries to promote education were noticed. For instance, the Ghana Government implemented the “Free Senior High School Policy” in 2017 which has seen significant improvement in Senior High School enrollment. Prior to the “Free Second Cycle Education Policy”, “Free Basic Education” was implemented by the Ghana Government in 1995 (Akyeampong, 2009). This has contributed to high literacy rate in the country.

However, the quality of education we expect cannot be realised without teachers. Teachers are integral part of educational system in Ghana. Teachers are involved in curriculum development and implementation. Despite the important roles played by teachers in Ghana, teachers are dissatisfied on their job due to inadequate motivation (Ofori, 2021). This leads to high attrition rate and disrupts teaching and learning (Effah and Osei-Owusu, 2014). For instance, it came to light that over 7000 teachers leave the Ghana Education Service annually due to insufficient reward systems (Ofori, 2021). Not only that but the performance of teachers is equally affected (Ofori, 2021).

These issues are pertinent giving rise to the government and other stakeholders to create work environment that motivates teachers to remain on their job and give in their best. This is because organisational environment improves employees’ productivity and retention rate (Massoudi and Hamdi, 2017). Work environment encompasses the overall conditions under which employees perform their duties (Nakpodia, 2011). The environment of an organisation includes but not limited to physical appearance, relationship between employees and management, relationship that exists between co-workers. By improving work environment, teachers with the Ghana Education Service will be satisfied with their job (Kosi *et al.*, 2015). Intrinsic and altruistic factors are key determinants of an individual’s decision to choose teaching as career (Adiguzel and Karagol, 2022). Among others, wages and salaries, and work environment contribute to teachers’ job satisfaction which then leads to employee productivity (Jalagat, 2016). Employee Productivity is a measure of an employee’s contribution towards organisational goals (Massoudi and Hamdi, 2017).

The qualitative study conducted by Massoudi and Hamdi (2017) which included 50 staff in four different international banks in the Kurdistan Region of Iraq found job satisfaction to influence productivity. The quantitative study conducted by Basit *et al.* (2018) which included 30 staff in Garut Substation and adopted associative method of causal correlation using SPSS found work environment to positively and significantly influence productivity. The desk review on how work environment improves community health worker

productivity and effectiveness in emerging countries carried out by Jaskiewicz and Tulenko (2012) revealed that work environment significantly influences productivity. It was revealed by Johnson *et al.* (2019)'s study that private offices significantly predicts perceived productivity of Software Engineers.

It can be deduced from the studies above that a significant number of them assessed the direct effect of work environment on productivity. In addition to the direct effect, the present study argues that this nexus is facilitated by job satisfaction. This is because employees' productivity might still be low despite the organisational ambience. Organisational ambience that does not satisfy employees will not improve their productivity. This present paper argues that the nexus amidst work environment and productivity is mediated by job satisfaction.

The paper is further motivated by the fact that despite the Ghana Government through the Ghana Education Service's effort to motivate Senior High School teachers through motivational packages including housing schemes, car loans, Continuous Professional Development allowance, car maintenance allowance, study leave with pay, responsibility allowance, and single spine salary (Achagi, 2012), they seem to be ill-motivated (Ofori, 2021). This will affect Senior High School teachers' productivity and more importantly endanger students' performance.

It is for the reason that this paper seeks to achieve two main objectives. First, the paper examines the effect of work environment on Senior High Schools teachers' productivity. Finally, the paper assesses the mediating effect of job satisfaction in the nexus amidst work environment and Senior High Schools teachers' productivity.

To better appreciate the rest of the study, the paper is arranged as follows. The next Section features the theoretical background and hypothesis development. Section 3 presents the methodology adopted followed by Section 4 which features the study's findings. Whilst Section 5 presents discussion and contributions of the study, Section 6 features conclusion and managerial implications. Finally, Section 7 presents the limitations of the study, which also delineates suggestions for future research. Figure 1 presents the diagrammatical representation of the variables and relationships studied.

2. Theoretical Background and Hypothesis Development

Herzberg two-factor theory underpins the theoretical framework of this study. The theory is tightly related to the Abraham Maslow's theory of needs. Whilst the two theories focus on motivation, Herzberg's theory focuses much on how Maslow's theory of needs functions at the business environment in the context of employment (Malik and Naeem, 2013). The needs were segregated into two different groups by Herzberg. Whilst one of the groups includes organisational procedures and policies, job circumstances, monitoring, wages, job recognition, managers-workers relationship, work security and balancing job and work; the other group encompasses development; work itself, job roles, work accomplishment, continuous professional development, and acceptance (Dagher and El-Farr, 2023).

Herzberg contends that factors in both groups must be present at all work places since their absence will give rise to dissatisfaction that could affect the organization negatively in terms of reduction in productivity. When viewed from the lens of this theory, the present study asserts that the presence of both the motivator and hygiene factors in the Ghana Education Service will encourage Senior High School teachers' productivity. These factors will enrich the work environment and induce teachers to put up good behaviour towards work to generate good results (Ofori, 2021).

2.1 Work Environment and Employee Productivity

As opined by War (2022), work environment encompasses the work place setting (e.g., temperature, furniture and fittings etc.), job features (e.g. job roles, work complexity), broader organizational characteristics (e.g. culture, past events) as well as facets of the additional firm setting (e.g. national employee market conditions, industry). Employee productivity on the other hand is the aggregation of employee's skills, motivation and work environment to generate the expected results (Bohlander and Snell, 2018). In light of the Herzberg two-factor theory, the motivator and hygiene factors will enrich the physical setting, job characteristics, and organizational setting to obtain the desired results of teachers.

Work environment designed to create value for employees and encourage knowledge sharing improves employees' productivity (Robbins and Judge, 2016). This is because it creates healthy workplace for employees and contributes to their personal, psychological and social well-being (Voordt and Jensen, 2023). As the ability of employees to contribute to organisational productivity depends on serene environment, improper work climate, and distractions will negatively affect their health and well-being and subsequently productivity (Ayoko and Ashkanasy, 2020). Moreover, vacuum-plan offices, shared offices and extensive background noise affect employees' personal, mental and social well-being thereby reducing their productivity (Colenberg *et al.*, 2020). Inappropriate furniture, unsuitable office ambience, inadequate ventilation, extensive noise, inadequate lighting, improper protective tools for personnels and insufficient safety controls expose employees to occupational risks which affect employee productivity (Nderitu and Ndeto, 2019). This is because a crucial part of any job is the environmental setting that the work takes place (Obamiro and Kumolu-Johnson, 2019). It was therefore

hypothesized that:

Hypothesis 1: *Work environment has a direct positive effect on productivity among Senior High Schools teachers in Ghana.*

2.2 Mediating Role of Job Satisfaction

Based on Herzberg two-factor theory which argues that both motivator and hygiene factors which relate to job content and job content respectively contribute to employees value creation, job satisfaction which is created through work environment will increase Ghanaian Senior High School teachers' output (Dagher and El-Farr, 2023). Job satisfaction refers to being content with one's work as a result of receiving what the employee expected from the employer (Putra *et al.*, 2023). Conducive work environment provides both motivator and hygiene factors that contribute to job satisfaction (Wahyudi *et al.*, 2023). Enhancing the physical and social environments of an organisation leads to job satisfaction (Nderitu and Ndeto, 2019).

Job satisfaction in turn increases employee productivity. The study carried out by Inuwa (2016) revealed the effect of job satisfaction on the performance of non-teaching staff of the Bauchi State University Gadau Nigeria to be significant positive. Job satisfaction is crucial for accomplishing any work. Employees work very hard to achieve organisational goals when they are satisfied on the job. They are motivated to work with the organisational for a considerable longer period of time thereby enhancing the competitiveness of the firm (Gomathy *et al.*, 2022).

A crucial question posed by this study is that does the effect of work environment on employee productivity same for all organisations as they operate in the same environment? The present study makes a case that the effect of work environment on employee productivity is not the same for all organisations. It takes work environment that satisfies employees to influence their productivity. Therefore, if work environment leads to job satisfaction which in turn affects employee productivity, then the nexus amidst work environment and employee productivity is intervened by job satisfaction. It was therefore hypothesized that:

Hypothesis 2: *Job satisfaction mediates the relationship between work environment and employee productivity among Senior High Schools teachers in Ghana.*

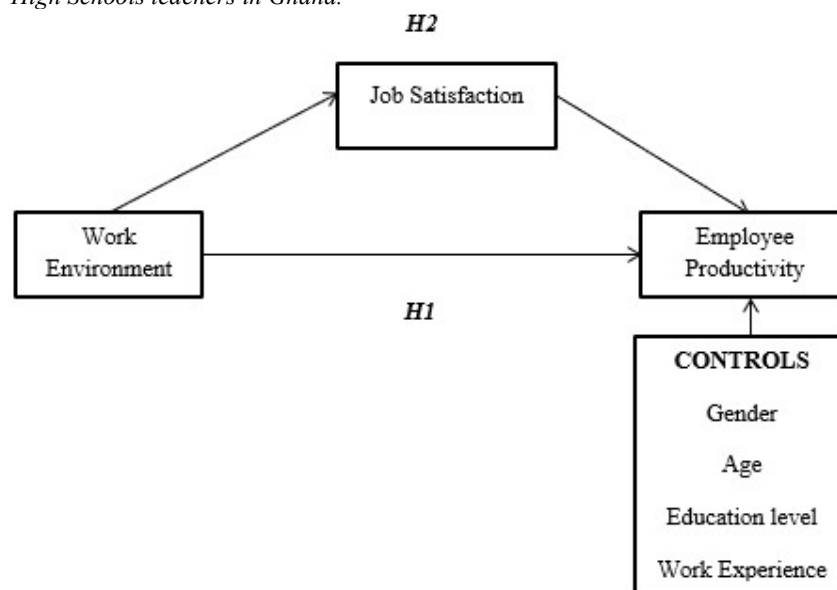


Figure 1: Conceptual Framework

3. Methods

3.1 Sampling, Data Collection and Measures

The study focused on Senior High School teachers with the Ghana Education Service. The Second Cycle Education level is the intermediate educational level between the basic and the tertiary educational levels in Ghana (Ofori, 2021). Teachers at this level are expected to inculcate knowledge and skills necessary to prepare students to be honest, creative, and responsible citizens who can further their education to the higher level. With the increasing turnover among public Senior High School teachers in Ghana, there is the need to strengthen the work environment.

Public Senior High School teachers in the Ashanti Region of Ghana formed the population of the study. The Ashanti Region is the region with the highest number of Senior High Schools in Ghana. As revealed by the Ghana Statistical Service, there are more than 80 Senior High Schools and 8,000 teachers in the Ashanti Region of Ghana.

The study therefore considered 10,000 teachers as a representative of the population. Ashanti region was considered suitable for this study since a number of the respondents were found in the region. 370 respondents were sampled for the study using simple random sampling technique which is a probability sampling method. This sampling technique ensures that each and every unit within the population has equal chance to be selected hence, avoids research bias. Krejcie and Morgan (1970) criteria was adopted to arrive at the sample size. The population (N) of 10,000 was substituted into their formula: $X^2NP(1 - P) \div d^2(N - 1) + X^2P(1 - P)$, where $X^2 = 3.841$, $P = 0.50$, and $d = 0.05$.

The entire data collection spanned 2 months. Structured questionnaire was adopted for the data collection. Electronic questionnaire was developed using Google form and distributed to the respondents via their WhatsApp platforms. The authors who happened to attend both secondary and tertiary education in Ashanti region had connections with some teachers who helped in sharing the questionnaire to their platforms. Each respondent was expected to respond to one questionnaire. The questionnaire had four sections. Sections A, B, C, and D featured measurement items under demographic, work environment, job satisfaction, and employee productivity. There were four demographic including gender, age, educational level, and working experience. Work environment and employee productivity had 8 measurement items each adapted from (Basit *et al.*, 2018). Finally, Job satisfaction had 7 measurement items adapted from (Al-dalahmeh *et al.*, 2018). The measurement items under the main constructs were measured on a Likert Scale of 1- *strongly disagree* to 5- *strongly agree*.

3.2 Reliability and Validity Analysis

To ensure that the questionnaire conforms to content validity, 2 educational professors were engaged to review the measurement items. Their suggestions contributed in deleting 4 measurement items under work environment, 2 measurement items under employee productivity, and 3 measurement items under job satisfaction. Their suggestion also helped in finetuning the wording of the retained measurement items. These retained measurement items were used to calculate Cronbach Alpha in SPSS (v.25) to assess the internal reliability of the measurement items. The results as revealed in Table 1 show that the Cronbach Alpha for all the constructs were greater than the minimum requirement of 0.7 as suggested by Hair *et al.* (2016) and was therefore concluded that the measurement items achieved internal consistency.

Table 1. Reliability Test

Construct	Number of Items	Cronbach Alpha
Work environment	4	0.867
Employee productivity	6	0.925
Job satisfaction	4	0.933

3.3 Multicollinearity Check

Multicollinearity was assessed by examining the correlation coefficients as adopted by (Borah *et al.*, 2022). There is existence of multicollinearity which may lead to confounding effect when there is/are correlation coefficient(s) greater than 0.7 as suggested by (Tabachnick *et al.*, 2007). It is evident from Table 2 that the highest correlation coefficient is 0.587. Hence, it was concluded that there was no multicollinearity in the data set. Moreover, multicollinearity was assessed by examining the Variance Inflation Factors (VIFs). It was revealed that all the VIFs were less than 5 (Table 7) which further provides evidence of the absence of multicollinearity in the data set.

Table 2. Multicollinearity Check

	Gen	Exp	Educ	Age	JS	WE	EP
Gen	1						
Exp	-.183	1					
Educ	-.053	.077	1				
Age	-.175	-.057	-.250*	1			
JS	-.102	.234*	.213*	-.246*	1		
WE	-.041	.350**	.150	-.254*	.352**	1	
EP	-.124	.371**	.074	-.245*	.558**	.587**	1

*. Correlation is significant at the 0.05 level (2-tailed).

**.. Correlation is significant at the 0.01 level (2-tailed).

4. Results

4.1 Descriptive Analysis

Tables 3, 4, and 5 present the descriptive analysis of the constructs. Five-point Likert Scale of 1-*strongly disagree* to 5-*strongly agree* was adopted. Mean score greater than 3 was regarded as positive response (agree range) and

mean score less than 3 was regarded as negative response (disagree range). As the total mean score for work environment was 3.608 which is greater than 3, it was concluded that the respondents agreed that they have a serene work environment. Additionally, it was identified that all the mean scores under work environment were greater than 3 signifying that the respondents agreed to all the items used to measure the construct.

Table 3. Work Environment

Items	Mean	Std. Deviation	Ranking
Each employee's effort is recognized	3.73	0.983	1 st
All caliber of workers are respected here	3.67	0.954	2 nd
I receive recognition when I do good work	3.64	1.106	3 rd
Workers are able to meet their work expectations	3.59	0.975	4 th
Diverse perspectives are valued at my company	3.41	1.093	5 th
Totals	3.608		-

Moreover, as the total mean score for employee productivity was 3.712 which is greater than 3, it was concluded that the respondents agreed that they contribute significantly to achieving the productivity of the organisation. It was further identified that all the mean scores under employee productivity were greater than 3 indicating that the respondents agreed to all the items used to measure the construct.

Table 4.4 Employee Productivity

Items	Mean	Std. Deviation	Ranking
I submit high quality work	3.78	0.927	1 st
I have positive attitude towards work	3.75	1.158	2 nd
I delivers work on time and meet deadlines	3.71	1.008	3 rd
I arrives at work on time	3.69	1.116	4 th
I perform well in high pressure situation	3.68	1.100	5 th
I seek for opportunities for growth	3.66	1.056	6 th
Totals	3.712		-

Finally, as the total mean score for job satisfaction was 3.488 which is greater than 3, it was concluded that the respondents agreed that they are satisfied on their job. It was further identified that all the mean scores under job satisfaction were greater than 3 indicating that the respondents agreed to all the items used to measure the construct.

Table 5. Job Satisfaction

Items	Mean	Std. Deviation	Ranking
I am proud to work for the company	3.59	0.965	1 st
My Job is enjoyable and challenging	3.49	0.937	2 nd
I am satisfied with the opportunity I have to grow within the company	3.44	0.978	3 rd
Considering everything, I am satisfied with my Job	3.43	0.998	4 th
Totals	3.488		-

4.2 Inferential Analysis

The regression coefficients were determined using Ordinary Last Square technique in SPSS (v.25). The results of the analysis are included in Tables 6. The study controlled for age, gender, experience, and education due to their potential effect on employee productivity.

From the results presented, age had inverse but statistically insignificant effect on employee productivity ($\beta = -0.100$; $p > 0.05$). Gender, experience, and education had positive but statistically insignificant effects on employee productivity ($\beta = 0.071$; $p > 0.05$; $\beta = 0.167$; $p > 0.05$; $\beta = 0.092$; $p > 0.05$). Therefore, enough statistical evidence does not exist to establish the effects of age, gender, experience, and education on employee productivity. However, the study found the effect of work environment on employee productivity to be positive and statistically significant ($\beta = 0.481$; $p < 0.01$). This means that a unit increase in work environment will cause employee productivity to increase by 48.1%, and vice versa. Hence, *H1* was supported by the study.

Finally, the study assessed the mediation effect of job satisfaction in the nexus amidst work environment and employee productivity. From the results presented in Table 6, work environment had a statistically significant positive effect on employee productivity ($\beta = 0.481$; $p < 0.01$) in Model 1. Moreover, work environment had a statistically significant positive effect on job satisfaction ($\beta = 0.485$; $p < 0.01$) in Model 2. Also, job satisfaction had a statistically significant positive effect on employee productivity ($\beta = 0.614$; $p < 0.01$) in Model 3. On account of the above, job satisfaction was found to mediate the nexus between work environment and employee

productivity. Additionally, since the effect of work environment on employee productivity was found to be statistically significant in Model 3, job satisfaction was found to partially mediate the nexus between work environment and employee productivity. Hence, *H2* was accepted by the study.

Table 6. Regression Results

Variables	EP	JS	EP	VIF
	Model 1	Model 2	Model 3	
Constant	1.205(1.886)	1.332(2.041*)	0.387(0.757)	
Gender	0.071(0.451)	-0.078(-0.483)	0.119(0.962)	1.096
Age	-0.100(-1.080)	-0.093(-0.979)	-0.043(-0.592)	1.205
Work exp	0.167(1.798)	0.021(0.227)	0.154(2.115*)	1.189
Education	0.92(0.935)	0.174(1.726)	-0.015(-0.187)	1.115
WE	0.481(5.578**)	0.485(5.504**)	0.183(2.359*)	1.649
JS			0.614(7.775**)	1.534
R2	0.385	0.348	0.628	
F	11.791**	10.042**	26.116**	

Notes; **p-value significant at 1% (0.001); *p-value significant at 5% (0.05); t-values are in parentheses; EP is Employee Productivity; JS is Job Satisfaction; WE is Work Environment.

5. Discussion and Contributions

A statistically significant positive effect of work environment on employee performance was found by the study. This finding is in tandem with Basit *et al.* (2018) which found work environment to positively and significantly influence employee productivity. Moreover, the finding of this study is in agreement with Jaskiewicz and Tulenko (2012) which found the effect of work environment on employee productivity to be significant positive. Additionally, the study's finding is in harmony with Johnson *et al.* (2019) which found private offices to significantly and positively predict perceived productivity of Software Engineers. A comfortable work setting offers a sense of protection and motivates employees to work to their full potential and achieve their expectations (Allen *et al.*, 2008). The work environment can affect employees' emotions. Employees' productivity increases when the work environment supports their activities (Badrianto *et al.*, 2020). Work environment which supports employees' operations and encourage knowledge sharing increases employees' productivity (Robbins and Judge, 2016). This is because it creates healthy workplace for employees and contributes to their physical, mental and social well-being (Voordt and Jensen, 2023).

Finally, this present study found the nexus amidst work environment and employee productivity to be partially mediated by job satisfaction. This finding is in agreement with Idris *et al.* (2020) which found job satisfaction to mediate the relationship between work environment and employee performance. The study's finding is in tandem with Bai (2016) which revealed a significant mediation effect of job satisfaction in the nexus amidst work environment and care quality. Conducive work environment provides both motivator and hygiene factors that contributes to job satisfaction (Wahyudi *et al.*, 2023). Enhancing the physical and social environments of an organisation leads to job satisfaction (Nderitu and Ndeto, 2019) which in turn influences employee productivity (Massoudi and Hamdi, 2017). The study conducted by Inuwa (2016) revealed that job satisfaction significantly and positively influences the performance of non- academic staff.

The findings of the study contribute to the Herzberg two-factor theory in that serene work environment serves as a motivator factor for employees to improve their productivity. Moreover, providing the necessary support to employees to make them satisfied on the job improves their productivity. Theoretically, the findings of the study affirm that work environment is a sufficient factor to improve employee productivity.

6. Conclusion and Managerial Implications

At the end of the study, it was revealed that work environment significantly and positively influences employee productivity. Moreover, job satisfaction partially mediates the nexus amidst work environment and employee productivity. In light of the above findings, management should pay much attention to workplace conditions so that employees feel comfortable. Management should ensure serene environment in the workplace to improve employee productivity. Management should implement acceptable job conditions to motivate employees to achieve their targets. This will ensure that employees submit high quality work. It will also encourage employees to demonstrate positive attitude towards work. By so doing, employees will deliver work on time and meet deadlines. Notwithstanding, employees will seek opportunities for growth in order to increase their productivity.

7. Limitations and Future Research Suggestions

The study was confined to public sector teachers with GES. Future studies may involve private sector teachers as they equally contribute to quality education and examining their work conditions is crucial. Moreover, this present stud considered job satisfaction in general. Future studies may be specific with the dimensions of job satisfaction

(e.g., intrinsic and extrinsic motivation) as they may have different impacts on employee productivity. Additionally, the study collected data at a particular point in time. As various motivational factors may be implemented by government over time, conducting longitudinal studies may produce interesting results. Finally, the study was conducted in Ghana. Conducting cross-country studies may be appropriate to analyse how different countries pay attention to their work environment, job satisfaction and the impacts on employee productivity.

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